

CLAIMS

What is claimed is:

- 5 1. Apparatus for regulating inline pressure of a liquid flowing
through the apparatus, the apparatus including a valve and comprising:
 - a) a valve seat having a flow orifice therethrough, said orifice having an
orifice axis; and
 - b) a valve head matable with said valve seat and having a valve head
10 axis,
wherein said orifice axis and said valve head axis are non-coaxial.
2. Apparatus in accordance with Claim 1 wherein said apparatus is
a fuel pressure regulator.
- 15 3. Apparatus in accordance with Claim 1 wherein said orifice axis is
parallel with said valve head axis.
4. Apparatus in accordance with Claim 1 wherein said valve seat
20 has a valve seat axis and wherein said valve seat axis is non-parallel with said
valve seat orifice.
5. Apparatus in accordance with Claim 1 wherein said valve seat
has a valve seat axis and wherein said orifice axis intersects said valve seat axis.
25 6. Apparatus in accordance with Claim 1 further comprising a lower
shell for retaining said valve seat.
7. Apparatus in accordance with Claim 6 wherein said seat is
30 disposed centrally in said lower shell.

8. Apparatus in accordance with Claim 6 wherein said seat is disposed off-center in said lower shell.

5 9. Apparatus in accordance with Claim 1 further comprising a diaphragm for supporting said valve head in a central opening in said diaphragm.

10. Apparatus in accordance with Claim 1 further comprising a diaphragm for supporting said valve head in an off-center opening in said diaphragm.

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11. Apparatus for regulating inline pressure of a liquid flowing through the apparatus, the apparatus including a valve and comprising:

a) a valve seat having an axis, a flow orifice therethrough and a sealing surface;

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b) a valve head matable with said valve seat, said valve head having an axis, and a sealing surface; and

c) a spring member disposed adjacent said valve seat, wherein said valve seat axis and said valve head axis are non-coaxial as a result of said spring member.

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12. A method for preventing chaotic flow in an apparatus for regulating inline pressure of a liquid flowing through the apparatus, the apparatus including a valve seat having a flow orifice therethrough, said orifice having an orifice axis, and a valve head matable with said valve seat and having a valve head axis, comprising the steps of:

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a) forming a first mating surface on said valve head in a plane orthogonal to said valve head axis; and

b) forming a second mating surface on said valve seat adjacent said first mating surface,

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wherein said orifice axis and said valve head axis are non-coaxial.

13. A method for preventing chaotic flow in an apparatus for regulating inline pressure of a liquid flowing through the apparatus, the apparatus including a valve seat having an axis, and a flow orifice therethrough, and a valve head matable with said valve seat and having a valve head axis, comprising the

5 steps of:

a) forming a first mating surface on said valve head in a plane orthogonal to said valve head axis; and

b) forming a second mating surface on said valve seat adjacent said first mating surface,

10 c) providing a spring member adjacent said valve head,

wherein said orifice axis and said valve head axis are non-coaxially biased by said spring member.